

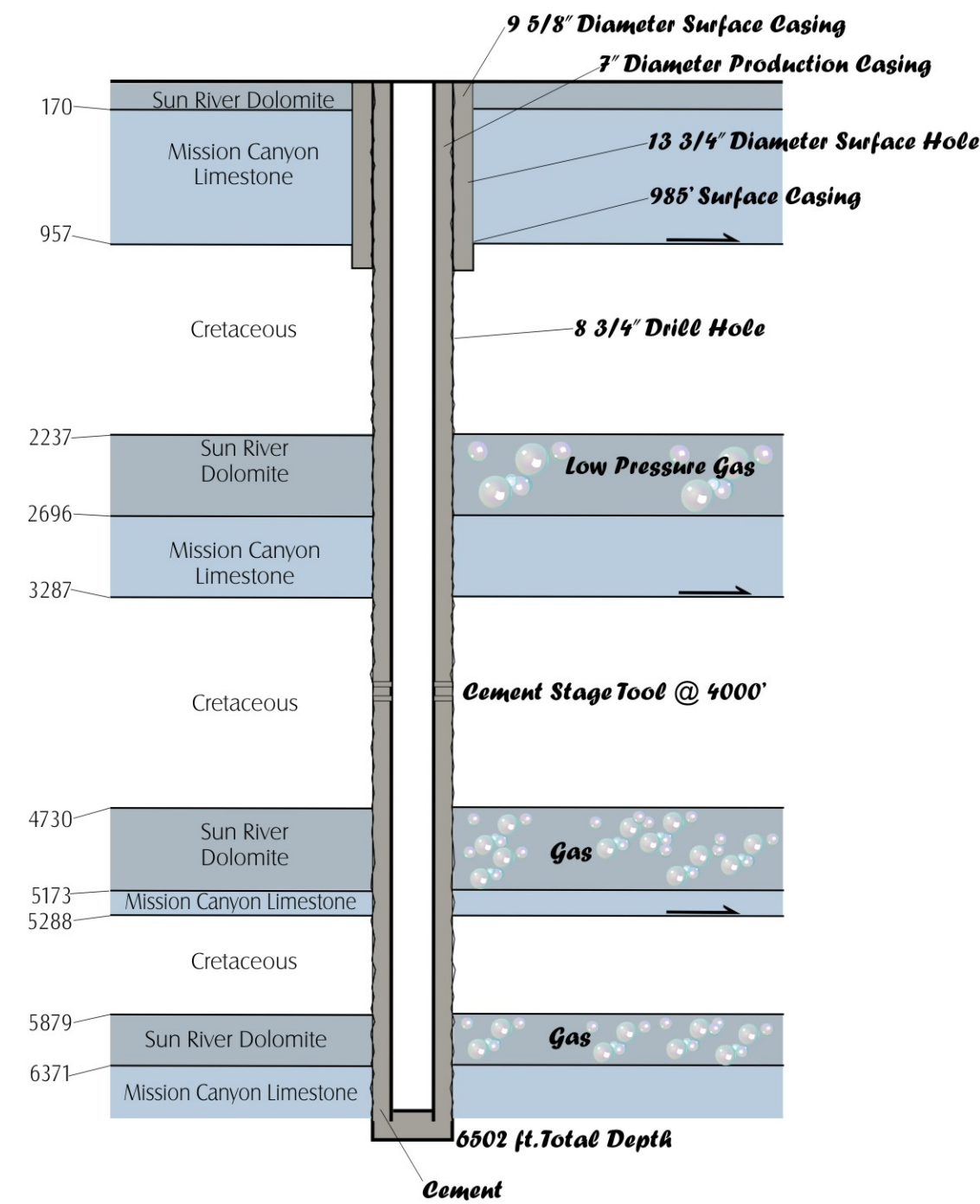


# BLACKLEAF PROJECT

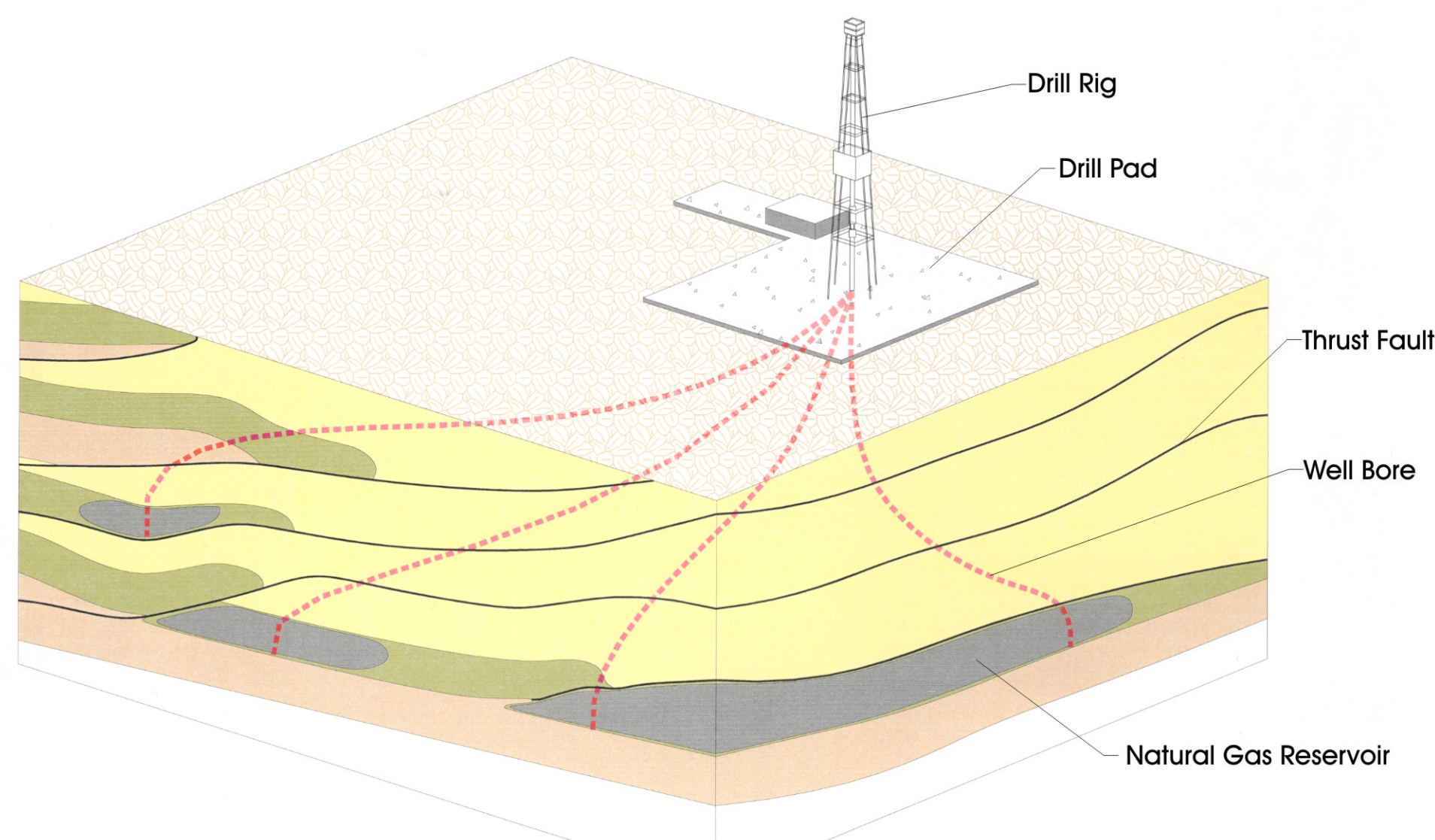
ENVIRONMENTAL IMPACT STATEMENT

EIS

SCOPING



**BLINDHORSE #1  
WELL COMPLETION DIAGRAM**



**DIRECTIONAL DRILLING SCHEMATIC**

## DIRECTIONAL DRILLING

- ★ Directional drilling refers to an advanced drilling technique that deviates from the straight and vertical. Depending on subsurface geology, technological advances now allow wells to deviate from strictly vertical to anywhere from a few degrees to completely horizontal, or even inverted toward the surface. According to the Department of Energy, "Directional and horizontal drilling enable producers to reach reservoirs that are not located directly beneath the drilling rig, a capability that is particularly useful in avoiding sensitive surface features." In addition to enabling producers to drill beneath sensitive surface areas, directional drilling has been shown to increase resource recovery because the horizontal bore has an increased chance of intersecting natural fractures and increasing drainage of the reservoir.
- ★ Advances in directional drilling now allow precise control of drilling direction. Depending on rock type, multiple wells directed at targets several thousand feet distant can be drilled from a single location.
- ★ Directional drilling is expensive and can add significantly to the risks of exploratory drilling. The longer the "reach" of the directional well, the higher the cost and risk and the longer the time to drill. There is a greater chance of losing the drill hole and losing expensive bottom-hole drilling tools in a directionally drilled well. At Blackleaf, a "reach" of 1/2 mile is considered a reasonable risk.

DIRECTIONAL DRILLING AND WELL COMPLETION